

```
=> s zinc/cn
L2          1 ZINC/CN

=> s copper/cn
L3          1 COPPER/CN

=> s manganese/cn
L4          1 MANGANESE/CN

=> s iron/cn
L5          1 IRON/CN

=> s cobalt/cn
L6          1 COBALT/CN

=> s nickel/cn
L7          1 NICKEL/CN

=> s vanadium/cn
L8          1 VANADIUM/CN

=> s molybdenum/cn
L9          1 MOLYBDENUM/CN
```

```
=> d2
D2 IS NOT A RECOGNIZED COMMAND
The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).
```

```
=> d 12
L2  ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2004 ACS on STN
RN  7440-66-6  REGISTRY
CN  Zinc (7CI, 8CI, 9CI)  (CA INDEX NAME)
OTHER NAMES:
CN  AN 325
CN  Asarco L 15
CN  Blue powder
CN  Ecka 4
CN  F 1000
CN  F 1000 (metal)
CN  F 1500T
CN  F 2000
CN  F 2000 (metal)
CN  LS 2
CN  LS 2 (element)
CN  LS 30
CN  LS 4
CN  LS 5
CN  LS 5 (metal)
CN  MCS
CN  MCS (metal)
CN  NC-Zinc
CN  Rheinzink
CN  Tc 8
CN  Tc 8 (metal)
CN  UF
CN  UF (metal)
CN  VM 4P16
CN  Z 620
CN  Zinc Dust 3
DR  12793-53-2, 195161-85-4, 199281-21-5, 298688-49-0
MF
Zn
CI
COM
LC  STN Files:  ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BIOPHARMA, BIOSIS,
     BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN,
     CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU,
```

BEST AVAILABLE COPY

DETERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2,
ENCOMPPAT, ENCOMPPAT2, HSDB*, IFICDB, IFIPAT, IFIUDB, IMSCOSEARCH, IPA,
MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM*, PIRA, PROMT,
RTECS*, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VETU, VTB
(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

DT.CA CAplus document type: Book; Conference; Dissertation; Journal; Patent;
Preprint; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study);
CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC
(Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process);
PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role
in record)

RLD.P Roles for non-specific derivatives from patents: ANST (Analytical
study); BIOL (Biological study); CMBI (Combinatorial study); FORM
(Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence);
PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or
reagent); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological
study); CMBI (Combinatorial study); FORM (Formation, nonpreparative);
MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC
(Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses);
NORL (No role in record)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical
study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC
(Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process);
PRP (Properties); RACT (Reactant or reagent); USES (Uses)

Zn

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

266117 REFERENCES IN FILE CA (1907 TO DATE)

12464 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

266447 REFERENCES IN FILE CAPLUS (1907 TO DATE)

1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> d 13

L3 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS on STN

RN 7440-50-8 REGISTRY

CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN 100RXH

CN 1100T

CN 115A

CN 1300YM

CN 1721 Gold

CN 200RL

CN 22BB400

CN 2L3GT

CN 3EC

CN 3EC-HTE

CN 3EC-III

CN 3EC-VEP

CN 3EC-VLP

CN 3EC-VLP18

CN 3EC-VLP35

CN 3EC3

CN 3L Fire

CN Allbri Natural Copper

CN AM-FN

CN Arwood copper

CN B-WS

CN B152-ETP
CN BAC 13B-NK120
CN BAC 13T
CN BHN
CN BHN 02T
CN BHY 02B-T
CN BHY 13HT
CN BHY 13T
CN BHY 22B-T
CN BPF 18
CN BSH
CN BSH (metal)
CN C 100
CN C 100 (metal)
CN C.I. 77400
CN C.I. Pigment Metal 2
CN CCL-HL 830
CN CDX
CN CDX (metal)
CN CE 1100
CN CE 1110
CN CE 115
CN CE 15
CN CE 25
CN CE 6
CN CE 6 (copper)
CN CE 7
CN CE 7 (metal)
CN CE 8A

ADDITIONAL NAMES NOT AVAILABLE IN THIS FORMAT - Use FCN, FIDE, or ALL for
DISPLAY

DR 133353-46-5, 133353-47-6, 65555-90-0, 72514-83-1, 195161-80-9

MF Cu

CI COM

LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS,
BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN,
CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU,
DETERM*, DIOGENES, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT,
ENCOMPPAT2, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*,
MSDS-OHS, NAPRALERT, NIOSHTIC, PIRA, PROMT, RTECS*, TOXCENTER, TULSA,
ULIDAT, USPAT2, USPATFULL, VETU, VTB

(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

DT.CA CAplus document type: Book; Conference; Dissertation; Journal; Patent;
Preprint; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study);
CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC
(Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process);
PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role
in record)

RLD.P Roles for non-specific derivatives from patents: ANST (Analytical
study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC
(Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process);
PRP (Properties); RACT (Reactant or reagent); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological
study); CMBI (Combinatorial study); FORM (Formation, nonpreparative);
MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC
(Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses);
NORL (No role in record)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical
study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC
(Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process);
PRP (Properties); RACT (Reactant or reagent); USES (Uses)

Cu

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

463943 REFERENCES IN FILE CA (1907 TO DATE)
22232 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
464503 REFERENCES IN FILE CAPLUS (1907 TO DATE)
2 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> d 14

L4 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 7439-96-5 REGISTRY
CN Manganese (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Colloidal manganese
CN Cutaval
CN JIS-G 1213
CN Manganese element
CN Manganese fulleride (MnC₂₀)
CN Manganese-55
DR 8031-40-1, 8075-39-6, 17375-02-9, 39303-06-5, 195161-78-5
MF Mn
CI COM
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIOGENES, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PIRA, PROMT, RTECS*, TOXCENTER, TULSA, UOLIDAT, USPAT2, USPATFULL, VETU, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)
DT.CA CAplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

Mn

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

166367 REFERENCES IN FILE CA (1907 TO DATE)
7566 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
166556 REFERENCES IN FILE CAPLUS (1907 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> d 15

L5 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS on STN

RN 7439-89-6 REGISTRY

CN Iron (7CI, 8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN 300A

CN 3ZhP

CN A 131

CN A 227

CN AC 325

CN Ancor B

CN Ancor EN 80/150

CN Ancor Image 100

CN AQ 80

CN Armco 80

CN Armco iron

CN ASC 300

CN ASC 300 (metal)

CN Atomel 300M200

CN Atomel 500M

CN Atomet 28

CN Atomet 95

CN Atomet 95G

CN Atomet 95SP

CN Atomiron 44MR

CN Atomiron 5M

CN Atomiron AFP 25

CN Atomiron AFP 5

CN ATW 230

CN ATW 432

CN BASF-EW

CN Carbon 0.17, iron 99.83 (atomic)

CN Carbonyl iron

CN CM

CN CM (iron)

CN Copy Powder CS 105-175

CN DH

CN DKP

CN DKP (metal)

CN DM 96

CN DM 96 (iron)

CN DNK 2R

CN DSP 1000

CN DSP 128B

CN DSP 135

CN DSP 135C

CN DSP 138

CN EF 1000

CN EF 250

CN EFV

CN EFV 200/300

CN EFV 250

CN EFV 250/400

CN Electrolytic iron

CN EO 5A

ADDITIONAL NAMES NOT AVAILABLE IN THIS FORMAT - Use FCN, FIDE, or ALL for
DISPLAY

DR 8011-79-8, 8053-60-9, 129048-51-7, 73135-38-3, 70884-35-4, 39344-71-3,
190454-13-8, 195161-83-2, 199281-22-6, 443783-52-6, 675141-17-0

MF Fe

CI COM

LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS,
BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN,
CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DETHERM*,
DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT,
ENCOMPPAT2, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*,
MSDS-OHS, NIOSHTIC, PIRA, PROMT, RTECS*, TOXCENTER, TULSA, ULIDAT,
USPAT2, USPATFULL, VETU, VTB

(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

DT.CA CAplus document type: Book; Conference; Dissertation; Journal; Patent;

Preprint; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

Fe

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

395864 REFERENCES IN FILE CA (1907 TO DATE)

19171 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

396299 REFERENCES IN FILE CAPLUS (1907 TO DATE)

1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> d 16

L6 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS on STN

RN 7440-48-4 REGISTRY

CN Cobalt (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN ACO 4

CN C.I. 77320

CN Co 0138E

CN Cobalt element

CN Cobalt-59

CN N 354Di

CN R 401

CN R 401 (metal)

DR 177256-35-8, 184637-91-0, 195161-79-6

MF Co

CI COM

LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIOGENES, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PIRA, PROMT, RTECS*, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VETU, VTB
(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

DT.CA CAplus document type: Book; Conference; Dissertation; Journal; Patent;

Preprint; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC

(Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

Co

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

162659 REFERENCES IN FILE CA (1907 TO DATE)

13848 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

162858 REFERENCES IN FILE CAPLUS (1907 TO DATE)

=> d 17

L7 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS on STN

RN 7440-02-0 REGISTRY

CN Nickel (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN Alcan 756

CN B 113W

CN C.I. 77775

CN Carbonyl 255

CN Carbonyl Ni 123

CN Carbonyl Ni 283

CN Carbonyl nickel

CN Carbonyl Nickel 123

CN Carbonyl Nickel 283

CN Carbonyl Nickel 287

CN Celmet

CN Celmet 4

CN Cerac N 2003

CN CHT

CN CNS 10 Micron

CN DNI 20

CN E 12

CN E 12 (metal)

CN Exmet 4 Ni X-4/0

CN Fibrex

CN Fibrex (metal fiber)

CN Fibrex P

CN Fibrex P (metal)

CN Fukuda 287

CN Incofoam

CN N 1

CN N 154

CN NDHT 90

CN NDT 65

CN NDT 90

CN NI 123

CN Ni 210

CN NI 255AC

CN NI 287

CN Ni 4303T
CN Ni-Flake 95
CN Nickel element
CN Nicrobraz LM:BNi 2
CN Nikko 255
CN NOT 90
CN Novamet 4SP
CN Novamet 4SP10
CN Novamet 525
CN Novamet HCA 1
CN Novamet NI 255
CN NP 2
CN PF 20
CN PF 20 (metal)
CN R 205
CN R 239

ADDITIONAL NAMES NOT AVAILABLE IN THIS FORMAT - Use FCN, FIDE, or ALL for
DISPLAY

DR 8049-31-8, 53527-81-4, 134631-46-2, 17375-04-1, 112084-17-0, 39303-46-3,
195161-84-3

MF Ni
CI COM

LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO,
CA, CABA, CANCERLIT, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS,
CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM*,
DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, HSDB*,
IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PIRA,
PROMT, RTECS*, TOXCENTER, ULIDAT, USPAT2, USPATFULL, VTB
(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

DT.CA CAplus document type: Book; Conference; Dissertation; Journal; Patent;
Preprint; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study);
CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC
(Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process);
PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role
in record)

RLD.P Roles for non-specific derivatives from patents: ANST (Analytical
study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC
(Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process);
PRP (Properties); RACT (Reactant or reagent); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological
study); CMBI (Combinatorial study); FORM (Formation, nonpreparative);
MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC
(Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses);
NORL (No role in record)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical
study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC
(Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process);
PRP (Properties); RACT (Reactant or reagent); USES (Uses)

Ni

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

296040 REFERENCES IN FILE CA (1907 TO DATE)
13460 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
296378 REFERENCES IN FILE CAPLUS (1907 TO DATE)

=> d 18

L8 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS on STN
RN 7440-62-2 REGISTRY
CN Vanadium (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN Atomic vanadium
CN Vanadium element
CN Vanadium fulleride (VC20)
CN Vanadium-51
DR 24763-58-4, 195161-77-4

MF V
CI COM

LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMLIST, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PIRA, PROMT, RTECS*, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VTB
(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

DT.CA CAplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

V

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

80415 REFERENCES IN FILE CA (1907 TO DATE)
4030 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
80513 REFERENCES IN FILE CAPLUS (1907 TO DATE)

=> d 19

L9 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS on STN

RN 7439-98-7 REGISTRY

CN Molybdenum (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN Amperit 105.054
CN Amperit 106.2
CN MChVL
CN Metco 63
CN Molybdenum element
CN NSC 600660
CN NSC 600661
CN NSC 600665
CN NSC 603570
CN NSC 603571
CN NSC 603572
CN TMOIO
CN TsM1

MF Mo
CI COM
LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHEM, CSNB, DDFU, DETHERM*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PIRA, PROMT, RTECS*, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VETU, VTB
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)
DT.CA Cplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

Mo

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

109789 REFERENCES IN FILE CA (1907 TO DATE)
4834 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
109912 REFERENCES IN FILE CAPLUS (1907 TO DATE)

=> s aspartic acid/cn
L10 2 ASPARTIC ACID/CN

=> s glutamic acid/cn
L11 2 GLUTAMIC ACID/CN

=> d 110

L10 ANSWER 1 OF 2 REGISTRY COPYRIGHT 2004 ACS on STN

RN 617-45-8 REGISTRY

CN Aspartic acid (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Aspartic acid, DL- (8CI)

CN DL-Aspartic acid

OTHER NAMES:

CN (+)-Aspartic acid

CN (RS)-Aspartic acid

CN Aminosuccinic acid

CN DL-Aminosuccinic acid

CN NSC 141379

FS 3D CONCORD

MF C4 H7 N 04

CI COM

LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BEILSTEIN*, BIOBUSINESS, BIOSIS,

CA, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, DETHERM*, DIOGENES, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MSDS-OHS, NAPRALERT, PIRA, PROMT, RTECS*, SPECINFO, SYNTHLINE, TOXCENTER, TULSA, USPAT2, USPATFULL

(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

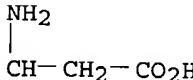
DT.CA CAplus document type: Conference; Dissertation; Journal; Patent; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.P Roles for non-specific derivatives from patents: BIOL (Biological study); PREP (Preparation); PRP (Properties); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

1134 REFERENCES IN FILE CA (1907 TO DATE)

51 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

1138 REFERENCES IN FILE CAPLUS (1907 TO DATE)

=> d 111

L11 ANSWER 1 OF 2 REGISTRY COPYRIGHT 2004 ACS on STN

RN 617-65-2 REGISTRY

CN Glutamic acid (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN DL-Glutamic acid

CN Glutamic acid, DL- (8CI)

OTHER NAMES:

CN (+)-Glutamic acid

CN Glutaminic acid

CN NSC 206301

CN NSC 9967

FS 3D CONCORD

MF C5 H9 N 04

CI COM

LC STN Files: ADISNEWS, AGRICOLA, BEILSTEIN*, BIOBUSINESS, BIOSIS, CA, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHEM, DETHERM*, DIOGENES, GMELIN*, HODOC*, IFICDB, IFIPAT, IFIUDB, MRCK*, PIRA, PROMT, PS, RTECS*, SPECINFO, SYNTHLINE, TOXCENTER, TULSA, USPAT2, USPATFULL, VTB

(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

DT.CA CAplus document type: Conference; Journal; Patent

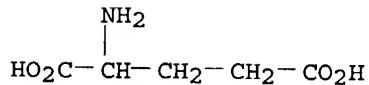
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.P Roles for non-specific derivatives from patents: BIOL (Biological study); PREP (Preparation); PRP (Properties); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological

study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

885 REFERENCES IN FILE CA (1907 TO DATE)

36 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

=> file caplus
COST IN U.S. DOLLARS
FULL ESTIMATED COST

| SINCE FILE ENTRY | TOTAL SESSION |
|---------------------|------------------|
| 66.62 | 66.83 |

FILE 'CAPLUS' ENTERED AT 17:21:13 ON 21 JUL 2004
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FILE COVERS 1907 - 21 Jul 2004 VOL 141 ISS 4
FILE LAST UPDATED: 20 Jul 2004 (20040720/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> S 617-65-2 and (7440-66-6 or 7440-50-8 or 7439-96-5 or 7439-89-6 or 7440-48-4 or 7440-02-0 or 7
REGISTRY INITIATED
Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L13 887 L12

REGISTRY INITIATED
Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L15 80510 L14

REGISTRY INITIATED
Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L17 296265 L16

REGISTRY INITIATED
Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L19 162904 L18

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L21 396343 L20

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L23 166642 L22

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L25 464543 L24

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L27 266397 L26

L28 52 L13 AND (L27 OR L25 OR L23 OR L21 OR L19 OR L17 OR L15)

=> S 617-65-2 and (7439-98-7)

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L30

887 L29

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L32

109908 L31

L33

0 L30 AND (L32)

=> S 617-45-8 and (7440-66-6 or 7440-50-8 or 7439-96-5 or 7439-89-6 or 7440-48-4 or 7440-02-0 or 7
REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L35

1138 L34

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L37

80510 L36

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L39

296265 L38

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L41 162904 L40

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L43 396343 L42

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L45 166642 L44

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L47 464543 L46

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L49 266397 L48

L50 79 L35 AND (L49 OR L47 OR L45 OR L43 OR L41 OR L39 OR L37)

=> s 617-45-8 and (7439-98-7)

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L52 1138 L51

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

L54 109908 L53

L55 2 L52 AND (L54)

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(FILE 'HOME' ENTERED AT 17:14:42 ON 21 JUL 2004)

FILE 'REGISTRY' ENTERED AT 17:14:53 ON 21 JUL 2004

L1 0 S ZINC/RN
L2 1 S ZINC/CN
L3 1 S COPPER/CN
L4 1 S MANGANESE/CN
L5 1 S IRON/CN
L6 1 S COBALT/CN
L7 1 S NICKEL/CN
L8 1 S VANADIUM/CN
L9 1 S MOLYBDENUM/CN
L10 2 S ASPARTIC ACID/CN
L11 2 S GLUTAMIC ACID/CN

FILE 'CAPLUS' ENTERED AT 17:21:13 ON 21 JUL 2004

S 617-65-2/REG# AND (7440-66-6/REG# OR 7440-50-8/REG# OR 743

FILE 'REGISTRY' ENTERED AT 17:26:36 ON 21 JUL 2004
L12 1 S 617-65-2/RN

FILE 'CAPLUS' ENTERED AT 17:26:36 ON 21 JUL 2004
L13 887 S L12

FILE 'REGISTRY' ENTERED AT 17:26:37 ON 21 JUL 2004
L14 1 S 7440-62-2/RN

FILE 'CAPLUS' ENTERED AT 17:26:37 ON 21 JUL 2004
L15 80510 S L14

FILE 'REGISTRY' ENTERED AT 17:26:38 ON 21 JUL 2004
L16 1 S 7440-02-0/RN

FILE 'CAPLUS' ENTERED AT 17:26:38 ON 21 JUL 2004
L17 296265 S L16

FILE 'REGISTRY' ENTERED AT 17:26:39 ON 21 JUL 2004
L18 1 S 7440-48-4/RN

FILE 'CAPLUS' ENTERED AT 17:26:39 ON 21 JUL 2004
L19 162904 S L18

FILE 'REGISTRY' ENTERED AT 17:26:40 ON 21 JUL 2004
L20 1 S 7439-89-6/RN

FILE 'CAPLUS' ENTERED AT 17:26:40 ON 21 JUL 2004
L21 396343 S L20

L22 FILE 'REGISTRY' ENTERED AT 17:26:41 ON 21 JUL 2004
1 S 7439-96-5/RN

L23 FILE 'CAPLUS' ENTERED AT 17:26:41 ON 21 JUL 2004
166642 S L22

L24 FILE 'REGISTRY' ENTERED AT 17:26:42 ON 21 JUL 2004
1 S 7440-50-8/RN

L25 FILE 'CAPLUS' ENTERED AT 17:26:42 ON 21 JUL 2004
464543 S L24

L26 FILE 'REGISTRY' ENTERED AT 17:26:43 ON 21 JUL 2004
1 S 7440-66-6/RN

L27 FILE 'CAPLUS' ENTERED AT 17:26:43 ON 21 JUL 2004
266397 S L26

L28 52 S L13 AND (L27 OR L25 OR L23 OR L21 OR L19 OR L17 OR L15)
S 617-65-2/REG# AND (7439-98-7/REG#)

L29 FILE 'REGISTRY' ENTERED AT 17:27:48 ON 21 JUL 2004
1 S 617-65-2/RN

L30 FILE 'CAPLUS' ENTERED AT 17:27:48 ON 21 JUL 2004
887 S L29

L31 FILE 'REGISTRY' ENTERED AT 17:27:49 ON 21 JUL 2004
1 S 7439-98-7/RN

L32 FILE 'CAPLUS' ENTERED AT 17:27:49 ON 21 JUL 2004
109908 S L31

L33 0 S L30 AND (L32)
S 617-45-8/REG# AND (7440-66-6/REG# OR 7440-50-8/REG# OR 743

L34 FILE 'REGISTRY' ENTERED AT 17:28:30 ON 21 JUL 2004
1 S 617-45-8/RN

L35 FILE 'CAPLUS' ENTERED AT 17:28:30 ON 21 JUL 2004
1138 S L34

L36 FILE 'REGISTRY' ENTERED AT 17:28:31 ON 21 JUL 2004
1 S 7440-62-2/RN

L37 FILE 'CAPLUS' ENTERED AT 17:28:31 ON 21 JUL 2004
80510 S L36

L38 FILE 'REGISTRY' ENTERED AT 17:28:32 ON 21 JUL 2004
1 S 7440-02-0/RN

L39 FILE 'CAPLUS' ENTERED AT 17:28:32 ON 21 JUL 2004
296265 S L38

L40 FILE 'REGISTRY' ENTERED AT 17:28:33 ON 21 JUL 2004
1 S 7440-48-4/RN

L41 FILE 'CAPLUS' ENTERED AT 17:28:33 ON 21 JUL 2004
162904 S L40

L42 FILE 'REGISTRY' ENTERED AT 17:28:34 ON 21 JUL 2004
1 S 7439-89-6/RN

L43 FILE 'CAPLUS' ENTERED AT 17:28:34 ON 21 JUL 2004
396343 S L42

L44 FILE 'REGISTRY' ENTERED AT 17:28:35 ON 21 JUL 2004
1 S 7439-96-5/RN

L45 FILE 'CAPLUS' ENTERED AT 17:28:35 ON 21 JUL 2004
166642 S L44

FILE 'REGISTRY' ENTERED AT 17:28:36 ON 21 JUL 2004
L46 1 S 7440-50-8/RN

FILE 'CAPLUS' ENTERED AT 17:28:36 ON 21 JUL 2004
L47 464543 S L46

FILE 'REGISTRY' ENTERED AT 17:28:37 ON 21 JUL 2004
L48 1 S 7440-66-6/RN

FILE 'CAPLUS' ENTERED AT 17:28:37 ON 21 JUL 2004
L49 266397 S L48
L50 79 S L35 AND (L49 OR L47 OR L45 OR L43 OR L41 OR L39 OR L37)
S 617-45-8/REG# AND (7439-98-7/REG#)

FILE 'REGISTRY' ENTERED AT 17:29:08 ON 21 JUL 2004
L51 1 S 617-45-8/RN

FILE 'CAPLUS' ENTERED AT 17:29:08 ON 21 JUL 2004
L52 1138 S L51

FILE 'REGISTRY' ENTERED AT 17:29:08 ON 21 JUL 2004
L53 1 S 7439-98-7/RN

FILE 'CAPLUS' ENTERED AT 17:29:08 ON 21 JUL 2004
L54 109908 S L53
L55 2 S L52 AND (L54)

=> s l28 or l50 or l55
L56 93 L28 OR L50 OR L55

=> s l56 and py <2002
21549320 PY <2002
L57 85 L56 AND PY <2002

=> s l57 and complex
1145595 COMPLEX
L58 51 L57 AND COMPLEX

=> s 617-45-8/proc
1138 617-45-8
3523807 PROC/RL
L59 245 617-45-8/PROC
(617-45-8 (L) PROC/RL)

=> s 617-65-2/proc
887 617-65-2
3523807 PROC/RL
L60 223 617-65-2/PROC
(617-65-2 (L) PROC/RL)

=> s l58 and l59
L61 21 L58 AND L59

=> s l58 and l60
L62 22 L58 AND L60

=> s l61 or l62
L63 25 L61 OR L62

=> d 1-25 ibib abs hitstr

L63 ANSWER 1 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:739594 CAPLUS
DOCUMENT NUMBER: 136:31050
TITLE: Retention and selectivity of teicoplanin stationary
phases after copper complexation and isotopic exchange
AUTHOR(S): Berthod, Alain; Valleix, Alain; Tizon, Veronique;
Leonce, Estelle; Caussignac, Celine; Armstrong, Daniel
W.
CORPORATE SOURCE: Laboratoire des Sciences Analytiques, CNRS Université

SOURCE: de Lyon 1, Villeurbanne, 69622, Fr.
Analytical Chemistry (2001), 73(22),
5499-5508
PUBLISHER: CODEN: ANCHAM; ISSN: 0003-2700
DOCUMENT TYPE: American Chemical Society
LANGUAGE: Journal
English

AB Teicoplanin is a macrocyclic glycopeptide that is highly effective as a chiral selector for LC enantiomeric sepn. Two possible interaction paths were studied and related to solute retention and selectivity: (1) interactions with the only teicoplanin amine group and (2) role of hydrogen bonding interactions. Mobile phases contg. 0.5 and 5 mM copper ions were used to try to block the amine group. In the presence of copper ions, the teicoplanin stationary phase has a decreased ability to sep. most underivatized racemic amino acids. However, it maintained its ability to sep. enantiomers that were not .alpha.-amino acids. There is little copper-teicoplanin **complex** formation. The effect of Cu²⁺ on the enantiosepn. of some .alpha.-amino acids appears to be due to the fact that these solutes are good bidentate ligands and form complexes with copper ions in the mobile phase. Isotopic exchange with deuterium oxide was performed using acetonitrile-heavy water mobile phases. The retention times of all amino acids were lower with deuterated mobile phases. The retention times of polar or apolar mols. without amine groups were higher with deuterated mobile phases. In all cases, the enantioselectivity factors were unaffected by the deuterium exchange. Probably the electrostatic interactions are decreased in the deuterated mobile phases and the solute-accessible stationary-phase vol. is somewhat swollen by deuterium oxide. The balance of these effects is a decrease in the amino acid retention times and an increase in the apolar solute retention time. The enantioselectivity factors of all of the mols. remain unchanged because all of the interactions are changed equally. The authors propose a new global quality criterion (the E factor) for comparing and evaluating enantiomeric sepn.

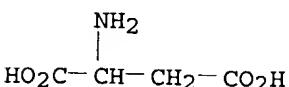
IT 7440-50-8, Copper, analysis
RL: ARU (Analytical role, unclassified); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent)
(divalent; retention and selectivity of teicoplanin stationary phases after copper complexation and isotopic exchange in LC enantiomeric sepn.)

RN 7440-50-8 CAPLUS

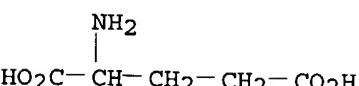
CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

IT 617-45-8, Aspartic acid 617-65-2, Glutamic acid
RL: ANT (Analyte); PEP (Physical, engineering or chemical process); PRP (Properties); ANST (Analytical study); PROC (Process)
(retention and selectivity of teicoplanin stationary phases after copper complexation and isotopic exchange in LC enantiomeric sepn.)
RN 617-45-8 CAPLUS
CN Aspartic acid (9CI) (CA INDEX NAME)



RN 617-65-2 CAPLUS
CN Glutamic acid (9CI) (CA INDEX NAME)



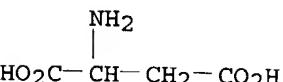
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L63 ANSWER 2 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 1998:567421 CAPLUS
 DOCUMENT NUMBER: 129:239268
 TITLE: Capillary zone electrophoresis separation of amino acid enantiomers as dansylated derivatives through control of electroosmotic flow
 AUTHOR(S): Soontornniyomkij, B.; Scandrett, K.; Pietrzyk, D. J.
 CORPORATE SOURCE: Department of Chemistry, Ubon Ratchathani University, Ubon Ratchathani, 34190, Thailand
 SOURCE: Journal of Liquid Chromatography & Related Technologies (1998), 21(15), 2245-2263
 CODEN: JLCTFC; ISSN: 1082-6076
 PUBLISHER: Marcel Dekker, Inc.
 DOCUMENT TYPE: Journal
 LANGUAGE: English

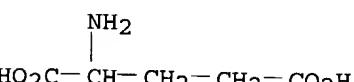
AB D,L-Amino acid enantiomers are sepd. by capillary zone electrophoresis (CZE) as 5-dimethylamino- 1-naphthalene sulfonyl (dansyl) derivs. using a Cu²⁺-L-aspartyl-L-phenylalanine Me ester (aspartame) **complex** as a chiral selector in the buffer. Only partial enantiomeric resoln. was obtained for several dansyl-D,L-amino acids and for the most favorable cases resoln. approaches .apprx.1.4. Increasing Mg²⁺, Cd²⁺, or Zn²⁺ concn. in a 10 mM NH₄OAc, 2.5 mM Cu²⁺, 5.0 mM aspartame, pH = 7.40 buffer increases dansyl-D,L-amino acid migration time, increases migration time difference between the D-enantiomer, which appears 1st in the electropherogram, and the L-enantiomer, and resolves the enantiomers of most dansyl-D,L-amino acids with resoln. values in the range of 1.4 to >5.0 depending on the deriv. and buffer conditions. An increase in the buffer divalent cation concn. reduces the electroosmotic flow (EOF) while the electrophoretic mobilities of the dansyl-D,L-amino acid enantiomers do not undergo significant change as the divalent cation concn. increases. The improved resoln. between the dansyl-D,L-amino acid enantiomers is due to the reduced EOF and small differences in the ternary **complex** formed between the dansyl-D,L-amino acid enantiomers and the Cu²⁺-aspartame **complex**.

IT 617-45-8, Aspartic acid 617-65-2, Glutamic acid
 RL: ANT (Analyte); PEP (Physical, engineering or chemical process); ANST (Analytical study); PROC (Process)
 (capillary zone electrophoresis sepn. of amino acid enantiomers as dansylated derivs. through control of electroosmotic flow)

RN 617-45-8 CAPLUS
 CN Aspartic acid (9CI) (CA INDEX NAME)



RN 617-65-2 CAPLUS
 CN Glutamic acid (9CI) (CA INDEX NAME)



IT 7440-50-8D, Copper, aspartame **complex**, analysis
 RL: ARU (Analytical role, unclassified); NUU (Other use, unclassified); ANST (Analytical study); USES (Uses)
 (chiral selector in capillary zone electrophoresis sepn. of amino acid enantiomers as dansylated derivs. through control of electroosmotic flow)

RN 7440-50-8 CAPLUS
 CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

IT 7440-66-6, Zinc, analysis
RL: ARU (Analytical role, unclassified); PRP (Properties); ANST (Analytical study)
(divalent; effect on capillary zone electrophoresis sepn. of amino acid enantiomers as dansylated derivs. through control of electroosmotic flow)
RN 7440-66-6 CAPLUS
CN Zinc (7CI, 8CI, 9CI) (CA INDEX NAME)

Zn

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

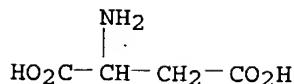
L63 ANSWER 3 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1994:207651 CAPLUS
DOCUMENT NUMBER: 120:207651
TITLE: Chiral separation of unmodified amino acids by ligand-exchange high-performance liquid chromatography using copper(II) complexes of L-amino acid amides as additives to the eluent
AUTHOR(S): Galaverna, Gianni; Corradini, Roberto; de Munari, Eriberto; Dossena, Arnaldo; Marchelli, Rosangela
CORPORATE SOURCE: Dipartimento di Chimica Organica e Industriale dell Universita, Viale delle Scienze, Parma, I-43100, Italy
SOURCE: Journal of Chromatography (1993), 657(1), 43-54
DOCUMENT TYPE: CODEN: JOCRAM; ISSN: 0021-9673
LANGUAGE: English
AB Cu(II) complexes of L-amino acid amides added to the eluent in reversed-phase HPLC are able to perform chiral discrimination of unmodified amino acids with high enantioselectivity. The mechanism is consistent with a ligand exchange between the binary initial Cu(II) complex and the enantiomers. Evidence is provided that the exchange of the ligand is actually occurring during the chromatog. sepn. The system involves equil. of exchange in the aq. soln., in the stationary phase and between the 2 phases. Enantioselectivity is essentially due to the adsorption of the diastereomeric ternary species on the column, whereas the relative stabilities of the mixed complexes in the mobile phase seem to be negligible with respect to the overall discrimination process. The structural features of the initial Cu complexes greatly affect the stereoselectivity of the process. The chromatog. parameters (pH, selector concn., eluent polarity, ionic strength) are examd.

IT 7440-50-8D, Copper, amino acid complexes
RL: ANST (Analytical study)
(as mobile phase additive for ligand-exchange high-performance liq. chromatog. sepn. of unmodified amino acids)

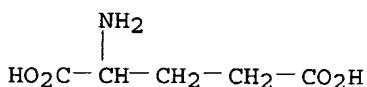
RN 7440-50-8 CAPLUS
CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

IT 617-45-8, DL-Aspartic acid 617-65-2, DL-Glutamic acid
RL: ANST (Analytical study); PROC (Process)
(resoln. of, by ligand-exchange HPLC using copper complexes of amino acid amides as mobile phase additives)
RN 617-45-8 CAPLUS
CN Aspartic acid (9CI) (CA INDEX NAME)



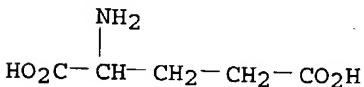
RN 617-65-2 CAPLUS
 CN Glutamic acid (9CI) (CA INDEX NAME)



L63 ANSWER 4 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 1994:94376 CAPLUS
 DOCUMENT NUMBER: 120:94376
 TITLE: Synthesis of microporous silica-gel particles in a W/O emulsion and an application to the direct optical resolution of amino acid enantiomers
 AUTHOR(S): Yamashita, Hiroshi; Maekawa, Takashi
 CORPORATE SOURCE: Fac. Eng., Ehime Univ., Matsuyama, 790, Japan
 SOURCE: Analytical Sciences (1993), 9(4), 545-8
 DOCUMENT TYPE: CODEN: ANSCEN; ISSN: 0910-6340
 LANGUAGE: English
 AB Synthesized silica-gels were used as a HPLC packing material after modification of their surfaces with 3-glycidoxypropyltrimethoxysilane and bonding L-phenylalanine. The efficiency of amino acid enantiomers optical resoln. was examd.
 IT 7440-50-8D, Copper, amino acid complexes
 RL: PRP (Properties); ANST (Analytical study)
 (HPLC capacity factor and stability consts. and amino acid mole fraction effect on spectra of)
 RN 7440-50-8 CAPLUS
 CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

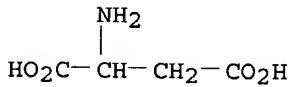
IT 617-65-2, DL-Glutamic acid
 RL: ANST (Analytical study); PROC (Process)
 (resoln. of, by HPLC on silica gel modified with glycidoxypropyltrimethoxysilane and L-phenylalanine.)
 RN 617-65-2 CAPLUS
 CN Glutamic acid (9CI) (CA INDEX NAME)



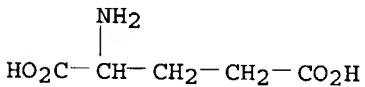
L63 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 1992:75334 CAPLUS
 DOCUMENT NUMBER: 116:75334
 TITLE: Synthesis and properties of a chiral chelating resin supported by phenol-formaldehyde copolymer
 AUTHOR(S): Ma, Jianbiao; He, Binglin
 CORPORATE SOURCE: Inst. Polym. Chem., Nankai Univ., Tianjin, 300071, Peop. Rep. China
 SOURCE: Gaodeng Xuexiao Huaxue Xuebao (1991), 12(3), 421-2
 DOCUMENT TYPE: CODEN: KTHPDM; ISSN: 0251-0790
 LANGUAGE: Chinese
 AB The microspheric phenol-formaldehyde copolymer, prep'd. by suspension

polymn. from phenol and formaldehyde, was grafted by L-proline through 2-hydroxy propylene spacer to give a chiral chelating resin. Its copper(II) chelate could be used as the stationary phase for the ligand-exchange chromatog. to resolve the racemates of proline, valine, isoleucine, methionine, histidine, asparagine, aspartic acid, and glutamic acid.

IT 617-45-8, DL-Aspartic acid 617-65-2, DL-Glutamic acid
RL: ANST (Analytical study); PROC (Process)
(resoln. of, by ligand-exchange chromatog. on copper chelated proline modified phenol-formaldehyde copolymer stationary phase)
RN 617-45-8 CAPLUS
CN Aspartic acid (9CI) (CA INDEX NAME)



RN 617-65-2 CAPLUS
CN Glutamic acid (9CI) (CA INDEX NAME)



IT 7440-50-8D, Copper, complex with proline modified phenol-formaldehyde copolymer
RL: ANST (Analytical study)
(stationary phase in resoln. of amino acids by ligand-exchange chromatog.)
RN 7440-50-8 CAPLUS
CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

L63 ANSWER 6 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1991:156362 CAPLUS
DOCUMENT NUMBER: 114:156362
TITLE: Separation of amino acid enantiomers on a reversed-phase sorbent modified with N-octyl-L-proline
Basyuk, V. A.

AUTHOR(S):
CORPORATE SOURCE: Inst. Surf. Chem., Kiev, USSR
SOURCE: Zhurnal Analiticheskoi Khimii (1990),
45(11), 2166-9
CODEN: ZAKHA8; ISSN: 0044-4502

DOCUMENT TYPE: Journal
LANGUAGE: Russian

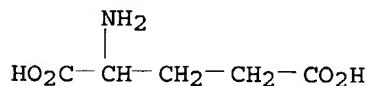
AB N-Octyl-L-proline applied onto C18-silica gel was used as a chiral modifier of stationary phase in ligand-exchange chromatog. of amino acid enantiomers. Some examples are reported of the sepn. of racemates of hydrophobic amino acids with the use of stationary phases contg. only copper sulfate additives.

IT 7440-50-8D, Copper, complexes with N-octyl-L-proline
RL: ANST (Analytical study)
(as stationary phase on octadecyl silica gel for ligand-exchange chromatog. resoln. of amino acids)

RN 7440-50-8 CAPLUS
CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu
IT 617-65-2, DL-Glutamic acid

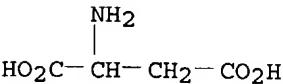
RL: ANST (Analytical study); PROC (Process)
(resoln. of, by ligand-exchange liq. chromatog.)
RN 617-65-2 CAPLUS
CN Glutamic acid (9CI) (CA INDEX NAME)



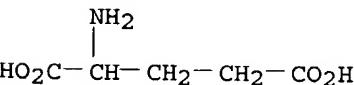
L63 ANSWER 7 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1991:82445 CAPLUS
DOCUMENT NUMBER: 114:82445
TITLE: Enantiomeric resolution of amino acids by reversed phase high performance liquid chromatography using a new chiral mobile phase
AUTHOR(S): Federici, F.; Girelli, A. M.; Messina, A.; Nicoletti, I.; Sinibaldi, M.
CORPORATE SOURCE: Ist. Cromatogr., CNR, Rome, 00016, Italy
SOURCE: Analytical Letters (1990), 23(8), 1565-79
CODEN: ANALBP; ISSN: 0003-2719
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 114:82445
AB The synthesis of a new chiral agent, (R,R) (-)N,N'-trans-1,2-dihexylcyclohexanediamine, for the chromatog. resoln. of racemates is reported. Highly selective sepns. of D- and L-isomers of free and dansyl amino acids were accomplished on a reversed-phase column using in the mobile phase a Cu(II) complex of the above chiral selector. The procedure was extended to resolve diastereomeric derivs., which were obtained by reaction of an optically active amine with o-phthaldehyde in the presence of N-acetyl-L-cysteine.
IT 7440-50-8DP, Copper, dihexylcyclohexanediamine complexes
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, for mobile phase in resoln. of amino acids by reversed-phase-performance liq. chromatog.)
RN 7440-50-8 CAPLUS
CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

IT 617-45-8, DL-Aspartic acid 617-65-2, DL-Glutamic acid
RL: PROC (Process)
(resoln. of, by reversed-phase high-performance liq. chromatog. using copper complexes of chiral dihexylcyclohexanediamine in mobile phase)
RN 617-45-8 CAPLUS
CN Aspartic acid (9CI) (CA INDEX NAME)



RN 617-65-2 CAPLUS
CN Glutamic acid (9CI) (CA INDEX NAME)



L63 ANSWER 8 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1990:578947 CAPLUS

DOCUMENT NUMBER: 113:178947
 TITLE: Adsorption properties of calcium-carboxymethylated chitin complex
 AUTHOR(S): Uraki, Yasumitsu; Nishi, Norio; Nishimura, Sinichiro; Tokura, Seiichi
 CORPORATE SOURCE: Fac. Sci., Hokkaido Univ., Sapporo, 060, Japan
 SOURCE: Chitin Chitosan: Sources, Chem., Biochem., Phys. Prop. Appl., [Proc. Int. Conf.], 4th (1989), Meeting Date 1988, 537-40. Editor(s): Skjaak-Braek, Gudmund; Anthonsen, Thorleif; Sandford, Paul A. Elsevier: London, UK.
 CODEN: 56VDAH
 DOCUMENT TYPE: Conference
 LANGUAGE: English
 AB The 6-O-carboxymethylated chitin(6-O-CM-chitin) has the highest affinity toward Ca ion among divalent metal ions. But Cd, Pb, Ni, and Ba ions adsorb on CM-chitin with remarkably higher affinity than Ca by additive carboxymethylation at the 3-O-hydroxyl group(3,6-O-CM-chitin). The absorption capacity of neutral amino acids on 6-O-CM-chitin is increased by Ca ion. The adsorption profile of neutral amino acids cannot be explained only by the side chain hydrophobicity phenylalanine is adsorbed on Ca-chelated CM-chitin with extremely high affinity. The specific affinity for the phenylalanine side chain is retained for the peptides contg. phenylalanine.
 IT 7439-96-5, Manganese, properties 7440-02-0, Nickel, properties 7440-50-8, Copper, properties
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (adsorption of, on carboxymethylated chitin)
 RN 7439-96-5 CAPLUS
 CN Manganese (8CI, 9CI) (CA INDEX NAME)

Mn

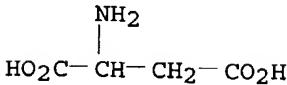
RN 7440-02-0 CAPLUS
 CN Nickel (8CI, 9CI) (CA INDEX NAME)

Ni

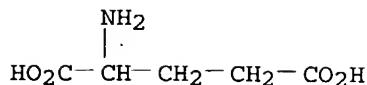
RN 7440-50-8 CAPLUS
 CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

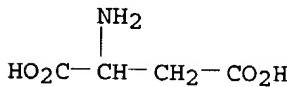
IT 617-45-8, DL-Aspartic acid 617-65-2, DL-Glutamic acid
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (adsorption of, on carboxymethylated chitin in presence of calcium or manganese ions)
 RN 617-45-8 CAPLUS
 CN Aspartic acid (9CI) (CA INDEX NAME)



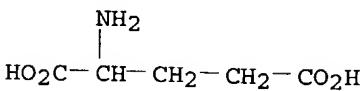
RN 617-65-2 CAPLUS
 CN Glutamic acid (9CI) (CA INDEX NAME)



L63 ANSWER 9 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 1989:193370 CAPLUS
 DOCUMENT NUMBER: 110:193370
 TITLE: Calcium-mediated adsorption of neutral amino acids to carboxymethylated chitin
 AUTHOR(S): Uraki, Yasumitsu; Tokura, Seiichi
 CORPORATE SOURCE: Fac. Sci., Hokkaido Univ., Sapporo, 060, Japan
 SOURCE: Journal of Macromolecular Science, Chemistry (1988), A25(10-11), 1427-41
 CODEN: JMCHBD; ISSN: 0022-233X
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Among various divalent metal ions, Ca has been found to be adsorbed tightly onto carboxymethylchitin. The adsorption was completed not only by induced carboxyl groups but also by the support of acetamide, as well as primary and secondary hydroxyl groups. Although the adsorption capacity for transition metal ions was enhanced appreciably by regeneration into fibrous form, only that of Ca ion, among alkali-earth metals, was at the same level as that of transition metals. Since little effect was shown on the adsorption of phenylalanine by the blocking of .alpha.-amino and .alpha.-carboxyl groups of L-phenylalanine, and since D-phenylalanine was so little adsorbed, the chiral specific adsorption of phenylalanine might be supported by mediation of the Ca ion and by the contribution of hydrophobicity of the .beta.-Ph group.
 IT 617-45-8, DL-Aspartic acid 617-65-2, DL-Glutamic acid
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (adsorption of, on carboxymethylchitin and calcium- or manganese-carboxymethylchitin complexes)
 RN 617-45-8 CAPLUS
 CN Aspartic acid (9CI) (CA INDEX NAME)



RN 617-65-2 CAPLUS
 CN Glutamic acid (9CI) (CA INDEX NAME)



IT 7439-96-5, Manganese, biological studies
 RL: PRP (Properties)
 (effect of, on adsorption on amino acids on carboxymethylchitin)
 RN 7439-96-5 CAPLUS
 CN Manganese (8CI, 9CI) (CA INDEX NAME)

Mn

L63 ANSWER 10 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 1988:621624 CAPLUS
 DOCUMENT NUMBER: 109:221624
 TITLE: Separation of dansylamino acid enantiomers by thin-layer chromatography
 AUTHOR(S): Sinibaldi, Massimo; Messina, Antonella; Girelli, Anna

CORPORATE SOURCE: Maria
SOURCE: Ist. Cromatogr., CNR, 00016, Italy
Analyst (Cambridge, United Kingdom) (1988),
113(8), 1245-7
CODEN: ANALAO; ISSN: 0003-2654

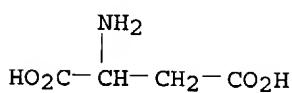
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A simple thin-layer chromatog. method for the sepn. of D- and L-dansylamino acids using a new resolving agent is described. The enantiomeric resoln. of racemates was accomplished on reversed-phase plates pretreated with a poly-L-phenylalaninamide-copper(II) complex using water-acetonitrile mixts. as eluent under isocratic conditions. The polymeric ligand was easily prep'd. by reaction of the optically active amide with ethylene glycol diglycidyl ether at room temp. The method is rapid and sensitive, and was successfully employed to resolve various dansylamino acids.

IT 617-45-8, DL-Aspartic acid 617-65-2, DL-Glutamic acid
RL: ANST (Analytical study); PROC (Process)
(resoln. of, as dansyl derivs. by thin-layer chromatog. on reversed-phase modified with polyphenylalaninamide-copper complex)

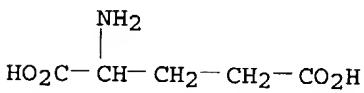
RN 617-45-8 CAPLUS

CN Aspartic acid (9CI) (CA INDEX NAME)



RN 617-65-2 CAPLUS

CN Glutamic acid (9CI) (CA INDEX NAME)



IT 7440-50-8D, Copper, polyphenylalaninamide complexes
RL: ANST (Analytical study)
(reverse-phase plates modified with, for thin-layer chromatog. resoln. of amino acids as dansyl derivs.)
RN 7440-50-8 CAPLUS
CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

L63 ANSWER 11 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1988:2822 CAPLUS
DOCUMENT NUMBER: 108:2822
TITLE: Optically selective adsorption of .alpha.-amino acids on montmorillonite-Cu-1-lysine complexes in high-pressure liquid chromatography
AUTHOR(S): Tsvetkov, Faina; Mingelgrin, U.
CORPORATE SOURCE: Inst. Soils Water, Agric. Res. Organ., Bet Dagan, 50-250, Israel
SOURCE: Clays and Clay Minerals (1987), 35(5), 391-9
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Optically active cationic complexes adsorbed on montmorillonite can be used for the resoln. of racemic mixts. Montmorillonite-Cu-lysine systems were used as a solid phase in HPLC for the resoln. of the optical isomers of .alpha.-amino acids. Selectivity consts. >1.5 were measured for phenylalanine and tryptophan. The selectivity consts. for the amino acids contg. satd.-hydrocarbon side chains were in the range of 1.25-1.44. The

montmorillonite-Cu-1-lysine **complex** displayed a stronger affinity for the l-isomers of .alpha.-amino acids than for the d-isomers at pH values near neutrality. Inasmuch as surface-catalyzed peptide formation on clays has been proposed as a step in chem. evolution, this stronger affinity between the clay-Cu-1-amino acid **complex** and l-amino acids might have been significant in prebiotic evolution. The mechanism of optical resoln. probably involved ligand exchange. Optimizing the choice of the optically active ligands and of the chelating cation in the chiral agent may improve the resoln. of the optical isomers.

IT 7440-50-8D, Copper, montmorillonite-lysine complexes

RL: ANST (Analytical study)

(amino acids resoln. by HPLC on)

RN 7440-50-8 CAPLUS

CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

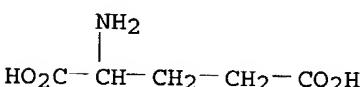
IT 617-65-2, DL-Glutamic acid

RL: PROC (Process)

(resoln. of, by HPLC)

RN 617-65-2 CAPLUS

CN Glutamic acid (9CI) (CA INDEX NAME)



L63 ANSWER 12 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1987:584692 CAPLUS

DOCUMENT NUMBER: 107:184692

TITLE: Copper(II) and lanthanum(III) **complex**

formation with hydroxy, amino, and methyl derivatives of succinic acid in aqueous solution

AUTHOR(S): Lehtonen, Pekka O.

CORPORATE SOURCE: Fac. Agric. For., Univ. Helsinki, Helsinki, SF-00710, Finland

SOURCE: Annales Academiae Scientiarum Fennicae, Series A2: Chemica (1987), 214, 43 pp.

CODEN: AAFCAX; ISSN: 0066-1961

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The acidity consts. of the ligands S(-)- and R,S(.+-.)-malic, S(+)-citramalic, R,S(.+-.)-2-methylbutanedioic and 2,2-dimethylbutanedioic acid, the stability consts. of their binary complexes with Cu(II) and La(III) ions; the acidity consts. of R(+)-malic acid, R,S(.+-.)-citramalic; stability consts. of their binary Cu(II) complexes were detd. potentiometrically in 0.5 M aq. NaCl₄ soln. at 25.degree. with the use of a glass electrode. The 1:1 complexes of citramalic acid with Cu(II) and La(III) were slightly more stable than the corresponding malic acid complexes. Potentiometric measurements confirmed the existence of stereoselectivity in the **complex** formation between Cu(II) and S(-)- and R,S(.+-.)-malic acid and S(+)- and R,S(.+-.)-citramalic acid. The stereoselectivity was revealed as a difference between the **complex** species of the racemic and optically active forms. Racemic malic acid and citramalic acid form mononuclear and polynuclear complexes with Cu(II), but the optically active forms of malic and citramalic acid form only mononuclear complexes.

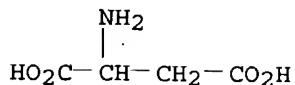
IT 617-45-8, R,S(.+-.)-Aspartic acid

RL: PEP (Physical, engineering or chemical process); PROC (Process)

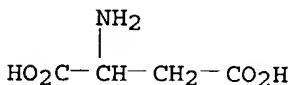
(ionization of)

RN 617-45-8 CAPLUS

CN Aspartic acid (9CI) (CA INDEX NAME)



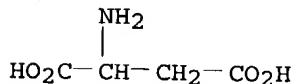
IT 617-45-8D, copper complexes 7440-50-8D, Copper,
 complexes with succinic acid derivs.
 RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
 (stability const. of)
 RN 617-45-8 CAPLUS
 CN Aspartic acid (9CI) (CA INDEX NAME)



RN 7440-50-8 CAPLUS
 CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

L63 ANSWER 13 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 1987:522181 CAPLUS
 DOCUMENT NUMBER: 107:122181
 TITLE: Protonation and copper(II) complex formation
 of 3-methyl-R,S(.+-.)-aspartate and
 R,S(.+-.)-aspartate systems in acid aqueous solution
 AUTHOR(S): Lehtonen, Pekka O.
 CORPORATE SOURCE: Fac. Agric. For., Univ. Helsinki, Helsinki, SF-00710,
 Finland
 SOURCE: Finnish Chemical Letters (1987), 14(1), 21-8
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The protonation and Cu(II) complex formation of
 3-methyl-R,S(.+-.)-aspartate (ligand 1) and R,S(.+-.)-aspartate (ligand 2)
 systems in aq. soln. were studied in acidic pH range at 25.degree.. A
 potentiometric method using a glass electrode was applied. A formal ionic
 strength of 0.5 was maintained by the addn. of NaClO4. Exptl. data were
 analyzed for the complex species formed and their stability
 consts. Both systems are characterized by an equil. among the mononuclear
 species CuLH, CuL, and CuL2.
 IT 617-45-8DP, copper(II) complexes 7440-50-8DP, Copper,
 aspartic acid complexes
 RL: FORM (Formation, nonpreparative); PREP (Preparation)
 (formation of)
 RN 617-45-8 CAPLUS
 CN Aspartic acid (9CI) (CA INDEX NAME)

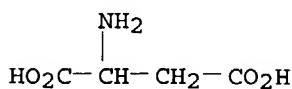


RN 7440-50-8 CAPLUS
 CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

IT 617-45-8, R,S(.+-.)-Aspartic acid
 RL: PEP (Physical, engineering or chemical process); PROC
 (Process)

RN (ionization of)
617-45-8 CAPLUS
CN Aspartic acid (9CI) (CA INDEX NAME)

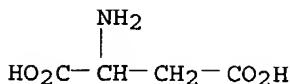


L63 ANSWER 14 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1987:138744 CAPLUS
DOCUMENT NUMBER: 106:138744
TITLE: Resolution of optical isomers as the mixed chelate copper(II) complexes by reversed phase chromatography
AUTHOR(S): Lam, Stanley; Karmen, Arthur
CORPORATE SOURCE: Dep. Lab. Med., Albert Einstein Coll. Med., Bronx, NY, 10461, USA
SOURCE: Journal of Liquid Chromatography (1986), 9(2-3), 291-311
CODEN: JLCHD8; ISSN: 0148-3919
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Highly selective sepn. of D- and L amino acids can be effected by reversed-phase chromatog. of mixed chelate complexes of the analyte acids with equimolar concns. of Cu(II) and an optically active second amino acid in the mobile phase. The stabilities of the formed diastereomeric ternary complexes will detd. the resoln. of enantiomers. By this approach, amino acids were resolved as the dansyl and O-phthalaldehyde (OPA) derivs. and imino acids were sepd. without derivatization. Resoln. of D and L dansyl amino acids was accomplished as the mixed complexes of Cu(II) with L-proline, L-arginine, L-histidine, and L-histidine Me ester as the second amino acids. Among the chiral ligands studied, L-histidine Me ester is unique in that it possesses both achiral selectivity for the dansyl amino acids and chiral selectivity for the resp. D and L enantiomers. With a mobile phase gradient of acetonitrile in a buffer contg. Cu(II) L-histidine Me ester complex, a stereoselective procedure for the anal. of D and L amino acid enantiomers was devised and it achieved the sepn. that the current amino acid analyzer failed. The mixed chelate metal complexation approach was extended to resolve OPA derivs. The free amino acid reacted with OPA in the presence of a chiral sulfhydryl reagent, N-acetyl-L-cysteine. HPLC of the derivs. was then performed on a reversed-phase column, with a mobile phase contg. Cu(II) L-proline, using fluorescence detection and resolved the optical isomers of the common primary amino acids. The same approach was also used to resolve compds. contg. amine and sulfhydryl groups. The simultaneous detection and resoln. of D and L imino acids is a more complicated problem. The reason is that the nitrogen of the imino acids must be derivatized in order to be detected, whereas both the carboxyl and the imino groups must be free to allow complexation for chiral sepn. A procedure for the resoln. of D and L isomers of pipecolic acid and proline was devised by complexing the analytes with Cu(II)-L-aspartame and detecting the complexes at UV 235 nm. The urine concn. of D and L pipecolic acid was also measured this way for patients with disorders of lysine metab.
IT 7440-50-8D, Copper, amino acid complexes
RL: RCT (Reactant); RACT (Reactant or reagent)
(resoln. of amino acids by reversed-phase chromatog. in presence of)
RN 7440-50-8 CAPLUS
CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

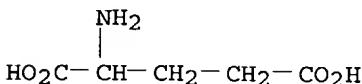
IT 617-45-8, DL-Aspartic acid 617-65-2, DL-Glutamic acid
RL: PROC (Process)
(resoln. of, by reversed-phase chromatog. via derivatization with phthalaldehyde in presence of acetylcysteine)
RN 617-45-8 CAPLUS

CN Aspartic acid (9CI) (CA INDEX NAME)



RN 617-65-2 CAPLUS

CN Glutamic acid (9CI) (CA INDEX NAME)



L63 ANSWER 15 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1986:164576 CAPLUS

DOCUMENT NUMBER: 104:164576

TITLE: Resolution of D- and L-amino acids after precolumn derivatization with o-phthalaldehyde by mixed chelation with copper(II)-L-proline

AUTHOR(S): Lam, Stanley

CORPORATE SOURCE: Dep. Lab. Med., Albert Einstein Coll. Med., Bronx, NY, 10461, USA

SOURCE: Journal of Chromatography (1986), 355(1), 157-64

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Highly selective sepn. of amino acids was accomplished by reversed-phase chromatog. of mixed chelate complexes of the acids with equimolar concns. of Cu(II) and an optically active 2nd amino acid in the mobile phase. Resoln. of D- and L-dansyl-amino acids was accomplished this way by using L-proline or L-histidine as the 2nd amino acids. The mixed chelation approach was extended to resolve o-phthalaldehyde (OPA) derivs. The free amino acid was reacted with OPA in the presence of N-acetyl-L-cysteine. HPLC of the deriv. was then performed on a reversed-phase column, with a mobile phase contg. L-proline and Cu(II), by using fluorescence detection. All primary amino acids reacted rapidly with OPA without measurable side products. The optical isomers were resolved. Study of the mechanism of optical selectivity confirmed that the chiral sulphydryl reagent was responsible for the formation of diastereomeric mixed chelate complex and for the resoln. of the isomers. The same approach was applied to resolve stereoisomers of amines and sulphydryl compds.

IT 7440-50-8, uses and miscellaneous

RL: USES (Uses)

(mobile phase contg. proline and, in amino acid optical isomer phthalaldehyde deriv. resoln. by reversed-phase HPLC)

RN 7440-50-8 CAPLUS

CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

IT 617-45-8 617-65-2

RL: PROC (Process)

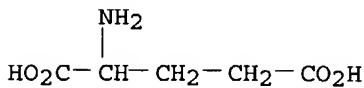
(resoln. of, as phthalaldehyde derivs. by reversed-phase high performance liq. chromatog. and mixed chelation with copper-proline)

RN 617-45-8 CAPLUS

CN Aspartic acid (9CI) (CA INDEX NAME)



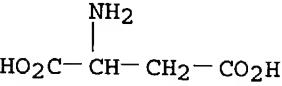
RN 617-65-2 CAPLUS
CN Glutamic acid (9CI) (CA INDEX NAME)



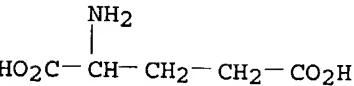
L63 ANSWER 16 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1986:28173 CAPLUS
DOCUMENT NUMBER: 104:28173
TITLE: Application of micro high-performance liquid chromatography to the separation of chiral amino acids
AUTHOR(S): Takeuchi, T.; Asai, H.; Hashimoto, Y.; Watanabe, K.; Ishii, D.
CORPORATE SOURCE: Fac. Eng., Nagoya Univ., Nagoya, 464, Japan
SOURCE: Journal of Chromatography (1985), 331(1), 99-107
CODEN: JOCRAM; ISSN: 0021-9673
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Micro high-performance liq. chromatog. sepn. of dansyl-D,L-amino acids was examd. by using Cu(II)-L-histidine or Cu(II)-L-histidine Me ester as eluent. Parameters that affect the retention and the resoln. of dansyl-D,L-amino acids were examd. Gradient elution was used to sep. many pairs of amino acids in a single chromatog. run.
IT 7440-50-8D, histidine and histidine Me ester complexes
RL: ANST (Analytical study)
(elutents for sepn. of chiral dansyl amino acids by HPLC)
RN 7440-50-8 CAPLUS
CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

IT 617-45-8 617-65-2
RL: ANST (Analytical study); PROC (Process)
(resoln. of, by micro HPLC with copper-histidine Me ester eluent)
RN 617-45-8 CAPLUS
CN Aspartic acid (9CI) (CA INDEX NAME)



RN 617-65-2 CAPLUS
CN Glutamic acid (9CI) (CA INDEX NAME)



L63 ANSWER 17 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1983:198689 CAPLUS
DOCUMENT NUMBER: 98:198689
TITLE: Optical resolution of aspartic acid by using copper complexes of optically active amino acids
AUTHOR(S): Harada, Kaoru; Fujii, Noriko
CORPORATE SOURCE: Dep. Chem., Univ. Tsukuba, Ibaraki, 305, Japan
SOURCE: Bulletin of the Chemical Society of Japan (1983), 56(2), 653-4

DOCUMENT TYPE: Journal

LANGUAGE: English

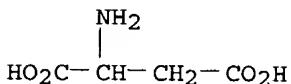
AB DL-Aspartic acid was resolved with high optical purity by the title method by a mechanism involving competitive inhibition of crystn.

IT 617-45-8

RL: PROC (Process)
(resoln. of)

RN 617-45-8 CAPLUS

CN Aspartic acid (9CI) (CA INDEX NAME)

IT 7440-50-8D, amino acid complexes
RL: RCT (Reactant); RACT (Reactant or reagent)
(resoln. reagents, for aspartic acid)

RN 7440-50-8 CAPLUS

CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

L63 ANSWER 18 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1982:472726 CAPLUS

DOCUMENT NUMBER: 97:72726

TITLE: Reversed-phase liquid chromatographic resolution of underivatized D,L-amino acids using chiral eluents

AUTHOR(S): Nimura, Noriyuki; Toyama, Atsuko; Kasahara, Yoko; Kinoshita, Toshio

CORPORATE SOURCE: Sch. Pharm. Sci., Kitasato Univ., Tokyo, 108, Japan
SOURCE: Journal of Chromatography (1982), 239, 671-5

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Resoln. of underivatized amino acid enantiomers by reversed-phase liq. chromatog. is described using chiral eluents contg. the copper(II) complexes of N-(p-toluenesulfonyl)-L-phenylalanine and N-(p-toluenesulfonyl)-D-phenylglycine. Resoln. of the enantiomers of neutral, basic, and acidic amino acids and their amides was accomplished on a octadecylsilyl bonded silica gel column. A chromatog. model is proposed that is based on dynamic ligand-exchange mechanism of DL-amino acid with tosylated amino acid-copper(II) complex on the chem. bonded phase.

IT 7440-50-8D, complexes with tosylphenylalanine and tosyl-D-phenylglycine

RL: RCT (Reactant); RACT (Reactant or reagent)
(as mobile phase for reversed-phase high-performance liq. chromatog. resoln. of underivatized DL-amino acid)

RN 7440-50-8 CAPLUS

CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

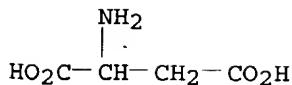
Cu

IT 617-45-8 617-65-2

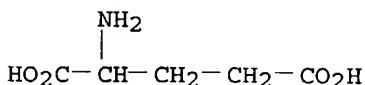
RL: PROC (Process)
(resoln. of, by reversed-phase high-performance liq. chromatog. using copper complexes of chiral amino acid derivs. as immobile phase)

RN 617-45-8 CAPLUS

CN Aspartic acid (9CI) (CA INDEX NAME)



RN 617-65-2 CAPLUS
 CN Glutamic acid (9CI) (CA INDEX NAME)



L63 ANSWER 19 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1982:465708 CAPLUS
 DOCUMENT NUMBER: 97:65708
 TITLE: Resolution of optical isomers of Dns-amino acids by high-performance liquid chromatography with L-histidine and its derivatives in the mobile phase
 AUTHOR(S): Lam, Stanley; Karmen, Arthur
 CORPORATE SOURCE: Albert Einstein Coll. Med., Bronx, NY, 10461, USA
 SOURCE: Journal of Chromatography (1982), 239, 451-62
 CODEN: JOCRAM; ISSN: 0021-9673

DOCUMENT TYPE: Journal
 LANGUAGE: English

AB The resoln. of the optical isomers of Dns-amino acids (Dns = dansyl) by high-performance liq. chromatog. with mixed chelate complexation is described. Addn. of Cu(II) complexes of L-histidine to the mobile phase resulted in resoln. of many D- and L-Dns-amino acids, including those with aliph., polar, and arom. substituents. With polar substituents, highly selective incorporation of the L-enantiomer into the ternary complex with increased retention on the column was obsd. The reverse occurred with amino acids with aliph. side chains; the D-isomers were incorporated preferentially. With arom. substituted amino acids, the resoln. was pH dependent. Substitution of Cu(II) complexes of L-histidine Me ester in the mobile phase dramatically reduced the stereoselectivity, although the isomers were still resolved. Cu(II) complexes of N-acetyl-L-histidine used in the mobile phase gave no stereoselectivity. Excellent sepn. of isomers were achieved with several of these systems. Many pairs of amino acids could be sepd. in the same chromatog. anal.

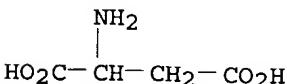
IT 7440-50-8D, histidine and histidine deriv. complexes

RL: ANST (Analytical study)
 (mobile phase for high-performance reverse-phase liq. chromatog.
 resoln. of amino acid optical isomer)

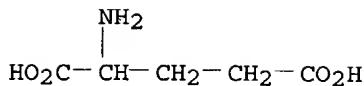
RN 7440-50-8 CAPLUS
 CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

IT 617-45-8 617-65-2
 RL: ANST (Analytical study); PROC (Process)
 (resoln. of, by high-performance liq. chromatog. with copper-histidine complexes in mobile phase)
 RN 617-45-8 CAPLUS
 CN Aspartic acid (9CI) (CA INDEX NAME)



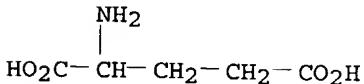
RN 617-65-2 CAPLUS
 CN Glutamic acid (9CI) (CA INDEX NAME)



L63 ANSWER 20 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 1982:439329 CAPLUS
 DOCUMENT NUMBER: 97:39329
 TITLE: Separation of D- and L-amino acids by HPLC with copper complexes of N,N-dialkyl-.alpha.-amino acids as new chiral additives
 AUTHOR(S): Weinstein, Shulamith
 CORPORATE SOURCE: Dep. Org. Chem., Weizmann Inst. Sci., Rehovot, 76 100, Israel
 SOURCE: Angewandte Chemie (1982), 94(3), 221-2
 DOCUMENT TYPE: Journal
 LANGUAGE: German
 AB The sepn. of D- and L-amino acids was achieved by high-pressure liq. chromatog. using Cu(II) complexes with R₂NCHR₁CO₂H (R = Me, Et, Pr, Bu, n-pentyl; R₁ = Me, CHMe₂) as chiral additives in the mobil phase. Thus, L- and D-valine were sepd. by the Cu(II) complex of N,N-dimethyl-L-valine, whereas L- and D-glutamic acid were sepd. by the Cu(II) complex of N,N-dipropyl-L-alanine.
 IT 7440-50-8D, N,N-dialkyl amino acid complexes
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (as chiral additive for resoln. of amino acids by high-pressure liq. chromatog.)
 RN 7440-50-8 CAPLUS
 CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

IT 617-65-2
 RL: PROC (Process)
 (resoln. of, by high-pressure liq. chromatog. on dialkyl amino acid copper complex)
 RN 617-65-2 CAPLUS
 CN Glutamic acid (9CI) (CA INDEX NAME)



L63 ANSWER 21 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 1982:406786 CAPLUS
 DOCUMENT NUMBER: 97:6786
 TITLE: Optically active alpha-amino acids
 INVENTOR(S): Zolotarev, Yu. A.
 PATENT ASSIGNEE(S): Institute of Molecular Genetics, USSR
 SOURCE: U.S.S.R. From: Otkrytiya, Izobret., Prom. Obraztsy, Tovarnye Znaki 1982, (1), 114-15.
 DOCUMENT TYPE: Patent
 LANGUAGE: Russian
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|--|----------|-----------------|--------------|
| SU 895980 | A1 | 19820107 | SU 1979-2753474 | 19790416 <-- |
| PRIORITY APPLN. INFO.: | | | SU 1979-2753474 | 19790416 |
| AB | Racemic amino acids were resolved by ligand exchange chromatog. on a | | | |

polyacrylamide sorbent (contg. the L-.alpha.-amino acid grouping bonded to a polyacrylamide framework through a methylene bridge) satd. to the extent 20-90% with Cu²⁺ ion and eluting the individual isomers with a soln. of NH₄ phosphate. Thus, the optical isomers of alanine, lysine, methionine, glutamic acid, and aspartic acid were obtained using a sorbent contg. L-phenylalanine.

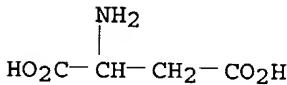
IT 7440-50-8D, amino acid complexes, polyacrylamide-bound
RL: RCT (Reactant); RACT (Reactant or reagent)
(for ligand-exchange chromatog. of racemic amino acids)

RN 7440-50-8 CAPLUS
CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

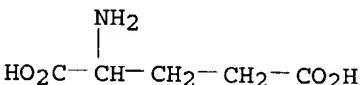
Cu

IT 617-45-8 617-65-2
RL: PROC (Process)
(resoln. of, by ligand-exchange chromatog.)

RN 617-45-8 CAPLUS
CN Aspartic acid (9CI) (CA INDEX NAME)



RN 617-65-2 CAPLUS
CN Glutamic acid (9CI) (CA INDEX NAME)



L63 ANSWER 22 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1980:495617 CAPLUS
DOCUMENT NUMBER: 93:95617
TITLE: Resolution of underivatized amino acids by reversed-phase chromatography
AUTHOR(S): Gil-Av, E.; Tishbee, A.; Hare, P. E.
CORPORATE SOURCE: Dep. Org. Chem., Weizmann Inst. Sci., Rehovot, Israel
SOURCE: Journal of the American Chemical Society (1980), 102(15), 5115-17
CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal
LANGUAGE: English
AB Underivatized amino acid enantiomers are sepd. by liq. chromatog. on reversed-phase (C-18) columns using a chiral mobile phase consisting of a Cu complex with L-proline. Post-column reaction with o-phthalaldehyde enables detection of picomole amts. of amino acids. Changing chirality of the mobile phase to D-proline reverses the elution order of the enantiomers indicating the formation during chromatog. of a diastereomeric complex of the enantiomer with the copper-proline complex.

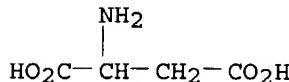
IT 7440-50-8D, proline complex
RL: RCT (Reactant); RACT (Reactant or reagent)
(liq. chromatog. column contg., for reversed-phase chromatog. of amino acids)

RN 7440-50-8 CAPLUS
CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

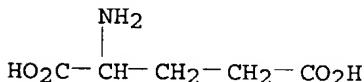
Cu

IT 617-45-8 617-65-2

RL: PROC (Process)
(resoln. of, by reversed-phase liq. chromatog. with copper-proline
complex mobile phase)
RN 617-45-8 CAPLUS
CN Aspartic acid (9CI) (CA INDEX NAME)



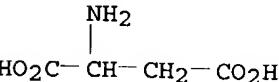
RN 617-65-2 CAPLUS
CN Glutamic acid (9CI) (CA INDEX NAME)



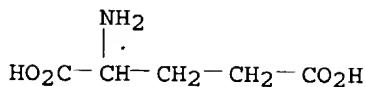
L63 ANSWER 23 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1980:181600 CAPLUS
DOCUMENT NUMBER: 92:181600
TITLE: Ligand-exchange chromatography of racemates. XI.
Complete resolution of some chelating racemic
compounds and nature of sorption enantioselectivity
AUTHOR(S): Davankov, V. A.; Zolotarev, Yu. A.; Kurganov, A. A.
CORPORATE SOURCE: Inst. Org.-Elem. Compd., Moscow, 117813, USSR
SOURCE: Journal of Liquid Chromatography (1979),
2(8), 1191-204
CODEN: JLCHD8; ISSN: 0148-3919
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The chromatog. resolns. of racemic amino acids using ligand exchange on
copper(II) ion-charged polystyrene type resins contg. residues of
optically active proline, hydroxyproline, allo-hydroxyproline, and
azetidinecarboxylic acid were studied. Possible variants of the
enantioselective complex formation in the resin phase are
discussed. Several examples of quant. resolns. of racemic amino acids as
well as members of other classes of chelating org. compds. are given.
IT 7440-50-8D, complex with resin-bound proline derivs.
RL: RCT (Reactant); RACT (Reactant or reagent)
(ligand-exchange chromatog. of racemic amino acids on)
RN 7440-50-8 CAPLUS
CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

IT 617-45-8 617-65-2
RL: PROC (Process)
(resoln. of, by ligand-exchange chromatog.)
RN 617-45-8 CAPLUS
CN Aspartic acid (9CI) (CA INDEX NAME)



RN 617-65-2 CAPLUS
CN Glutamic acid (9CI) (CA INDEX NAME)



L63 ANSWER 24 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1978:23398 CAPLUS

DOCUMENT NUMBER: 88:23398

TITLE: Optical resolution of racemic mixtures

INVENTOR(S): Tsuchida, Hidetoshi; Nishikawa, Hiroshi

PATENT ASSIGNEE(S): Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|-------------|------|----------|-----------------|--------------|
| JP 52085101 | A2 | 19770715 | JP 1976-997 | 19760106 <-- |
| JP 56029841 | B4 | 19810710 | | |

PRIORITY APPLN. INFO.: JP 1976-997 19760106

AB In optical resoln. of racemic mixts. of optically active substances capable of forming chelates with metal complexes, the racemic mixts. were contacted with complexes between metal ions and polymers contg. chelating-forming optically active residues and 1 of the antipodes were selectively adsorbed to effect the optical resoln. of the racemic mixts. Thus, a mixt. of 21 g L-leucine-N-methylpolystyrene (obtained by reaction of a copolymer between formylstyrene and divinylbenzene with L-Leucine followed by redn. of the resulting Schiff base with NaBH4) and 50 mL 1M aq. Cu(II) was made pH 11 with NaOH and filtered to give a **complex** resin. An aq. soln. (5 mL, pH 7) contg. 1.17 g DL-valine was passed over the resin and developed with 4 mL/h H2O at pH 7 to elute a fraction contg. 3-fold D-valine and another fraction contg. 4-fold L-valine. DL-Alanine, DL-tryptophan, DL-proline, DL-aspartic acid, DL-glutamic acid, and DL-tartaric acid were similarly resolved.

IT 7440-50-8D, polymer **complex**

RL: RCT (Reactant); RACT (Reactant or reagent)
(resoln. by, of amino acids)

RN 7440-50-8 CAPLUS

CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

IT 617-45-8 617-65-2

RL: PROC (Process)
(resoln. of, by copper polymer **complex**)

RN 617-45-8 CAPLUS

CN Aspartic acid (9CI) (CA INDEX NAME)



RN 617-65-2 CAPLUS

CN Glutamic acid (9CI) (CA INDEX NAME)



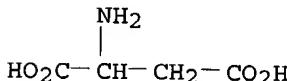
L63 ANSWER 25 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 1977:453541 CAPLUS
 DOCUMENT NUMBER: 87:53541
 TITLE: Ligand-exchange chromatography of racemates on
 asymmetric sorbents with trifunctional amino acid
 residues (histidine, methionine, methionine sulfoxide)
 AUTHOR(S): Yamskov, I. A.; Rogozhin, S. V.; Davankov, V. A.
 CORPORATE SOURCE: Inst. Org. Ele. Compounds, Moscow, USSR
 SOURCE: Bioorganicheskaya Khimiya (1977), 3 (2),
 200-5
 CODEN: BIKHD7; ISSN: 0132-3423
 DOCUMENT TYPE: Journal
 LANGUAGE: Russian
 AB Racemic amino acids were resolved by chromatog. on polystyrene bound
 L-histidine, D-methionine, and D-methionine sulfoxide in the presence of
 Cu²⁺ or Ni²⁺ ions. More stable sorption complexes were formed with the
 Cu²⁺ ions and resin-bound and mobile amino acid residues of opposite
 configuration. Resoln. was most effective with histidine and methionine
 sulfoxide resins.
 IT 7440-02-0D, complexes with resin-bound amino acids
 7440-50-8D, complexes with resin-bound amino acids
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (chromatog. substrate, for resoln. of amino acids)
 RN 7440-02-0 CAPLUS
 CN Nickel (8CI, 9CI) (CA INDEX NAME)

Ni

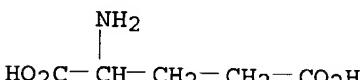
RN 7440-50-8 CAPLUS
 CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

Cu

IT 617-45-8 617-65-2
 RL: PROC (Process)
 (resoln. of, by chromatog. on resin-bound amino acid-metal complexes)
 RN 617-45-8 CAPLUS
 CN Aspartic acid (9CI) (CA INDEX NAME)



RN 617-65-2 CAPLUS
 CN Glutamic acid (9CI) (CA INDEX NAME)



| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|--|------------------|---------------|
| FULL ESTIMATED COST | 147.12 | 270.08 |
| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE ENTRY | TOTAL SESSION |
| CA SUBSCRIBER PRICE | -18.38 | -18.38 |